

REMARKS

Applicant hereby submits that the enclosures fulfill the requirements under 37 C.F.R. §1.821-1.825. The amendments in the specification merely insert the paper copy of the Sequence Listing and sequence identifiers in the specification. No new matter has been added.

Attached hereto is a marked-up version of the changes made to the specification by the current amendment.

The amendment to Figure 2 serves only to correct a typographic error in the nucleic acid sequence (SEQ ID NO:10) designated "mtbn2" in Figure 2. As shown in the attached marked-up copy of Figure 2, the amendment serves to change nucleotide 295 in the "mtbn2" sequence from a "t" to a "g". The last codon in SEQ ID NO:10 being a stop codon ("tag"), the effect of this amendment is to change the penultimate codon from "taa" to "gaa". While the "taa" codon does not code for any amino acid, the "gaa" codon codes for glutamic acid (E). As shown in the predicted amino acid sequence of the protein encoded by "mtbn2" nucleic acid sequence (designated "MTBN2" in Figure 1; SEQ ID NO:2), the last amino acid in the protein is glutamic acid (E). Thus, the requested change in the nucleotide sequence of "mtbn2" is supported by the amino acid sequence of "MTBN2". This consideration indicates that the "t" in the penultimate codon of SEQ ID NO:10 was indeed a typographic error and should have been a "g". No new matter is added by this amendment to Figure 2.

Note that in both the enclosed computer readable form and the enclosed hard copy of the Sequence Listing, the correct sequence of "mtbn2" (SEQ ID NO:10) is provided.

The amendment to Figure 3 serves only to correct an error in the designation of the protein indicated in Figure 3 to be one of three used to challenge subgroups within four groups of guinea pigs (see Example 1 on page 14 and the description of Figure 3 on page 10 of the specification). From the experimental description on pages 14-15, it is clear that the agent used to challenge the guinea pigs shown by the set of bars on the right of the figure is the "MTBN4" protein. No new matter is added by this amendment to Figure 3.

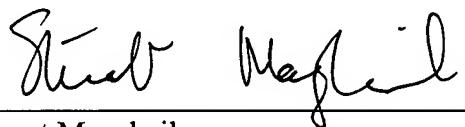
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Serial No. : 10/009,383
Filed : November 2, 2001
Page : 4

Attorney's Docket No.: 07763-043001

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Respectfully submitted,

Date: 4/16/03



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“Version With Markings to Show Changes Made”

In the specification:

Paragraph beginning at page 9, line 31, has been amended as follows:

[Figure 1 is] Figures 1A and 1B are a depiction of the amino acid sequences of *M. tuberculosis* polypeptides MTBN1-MTBN8 (SEQ ID NOs:1-8, respectively).

Paragraph beginning at page 9, line 33, has been amended as follows:

[Figure 2 is] Figures 2A-2E are a depiction of the nucleotide sequences of the coding regions (mtbn1-mtbn8) encoding MTBN1-MTBN8 (SEQ ID NOs:9-16, respectively).



Application No. 10/009,383

**NOTICE TO COMPLY WITH REQUIREMENTS FOR PATENT APPLICATIONS CONTAINING
NUCLEOTIDE SEQUENCE AND/OR AMINO ACID SEQUENCE DISCLOSURES**

The nucleotide and/or amino acid sequence disclosure contained in this application does not comply with the requirements for such a disclosure as set forth in 37 CAR §1.821 - §1.825 for the following reason(s):

1. This application clearly fails to comply with the requirements of 37 CAR §1.821 - §1.825. Applicant's attention is directed to these regulations, published at 1114 OG 29, May 15, 1990, and at 55 FR 18230, May 1, 1990.

2. This application does not contain, as a separate part of the disclosure on paper copy, a "Sequence Listing" as required by 37 CAR §1.821(c).

3. A copy of the "Sequence Listing" in computer readable form has not been submitted as required by 37 CAR §1.821(e).

4. A copy of the "Sequence Listing" in computer readable form has been submitted. However, the content of the computer readable form does not comply with the requirements of 37 CAR §1.822 and/or §1.823, as indicated on the attached copy of the marked-up "Raw Sequence Listing".

5. The computer readable form that has been filed with this application has been found to be damaged and/or unreadable as indicated on the attached CRF Diskette Problem Report. A substitute computer readable form must be submitted as required by 37 CAR §1.825(d).

6. The paper copy of the "Sequence Listing" is not the same as the computer readable form of the "Sequence Listing" as required by 37 CAR §1.821(e).

7. Other: _____

APPLICANT MUST PROVIDE:

An initial or substitute computer readable form (CRF) copy of the "Sequence Listing".

An initial or substitute paper copy of the "Sequence Listing", as were as an amendment directing its entry into the specification.

A statement that the content of the paper and computer readable copies are the same and, where applicable, include no new matter, as required by 37 CAR §1.821(e) or §1.821(f) or §1.821(g) or §1.825(b) or §1.825(d).

FOR QUESTIONS REGARDING COMPLIANCE WITH THESE REQUIREMENTS, PLEASE CONTACT:

For Rules Interpretation, call (703) 308-1123
For CRF Submission help, call (703)308-4212
For Patentin Software help, call (703) 557-0400

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FIG. 2mtbn1

1 atgactgctg aaccggaagt acggacgctg cgcgagggtt tgctggacca
51 gctcggcaact gctgaatcg gtcgtacaa gatgtggctg ccggccgttga
101 ccaatccgtt cccgctcaac gagctcatcg cccgtatcg gcgacaaccc
151 ctgcgatttgc ccctggggat catggatgaa ccgcgcgcgc atctacagga
201 tgtgtggggc gtagacgttt ccggggccgg cggaacacatc ggtattgggg
251 ggcacacctca aaccgggaag tcgacgctac tgcaagacat ggtgatgtcg
301 gccgcccgcac cacactcacc gcgcaacgtt cagttctatt gcacatcgac
351 aggtggcggc gggctgatct atctcgaaaa ccttccacac gtcgggtgggg
401 tagccaatcg gtccgagccc gacaaggatca accgggtggt cgcaagagatg
451 caagccgtca tgcggcaacg gaaaccacc ttcaaggaac accgagtggg
501 ctgcgatcggg atgtaccggc agctgcgtga cgatccaatg caacccgtt
551 cgtccgatcc atacggcgac gtcttctga tcatcgacgg atggcccggt
601 tttgtcggcg agttccccga ccttgagggg caggttcaag atctggccgc
651 ccaggggctg gcgttcggcg tccacgtcat catctccacg ccacgctgga
701 cagagctgaa gtcgcgtgtt cgcgactacc tcggcaccaa gatcgagtt
751 cggttgggt acgtcaatga aaccaggatc gaccggatta cccgcgagat
801 cccggcgaat cgtccgggtc gggcagtgtc gatggaaaag caccatctga
851 tgcgtccgtt gcccagggtt gacggcgtgc acagcgccga taacctgggt
901 gaggcgatca cggcgggggt gacgcagatc gtttccagc acaccgaaca
951 ggcacctccg gtgcgggtcc tgccggagcg tatccacctg cacgaactcg
1001 acccgaaccc gcccggacca gagtccgact accgcactcg ctggagatt
1051 ccgatcggct tgcgcgagac ggacctgacg ccggctcact gccacatgca
1101 cacgaacccg cacctactga tcttcgggtc ggccaaatcg ggcaagacga
1151 ccattgcccc cgcgatcgcg cgccattt gtgcccggaaa cagtcggccag
1201 caggtgcgtt tcatgctcg gactaccgc tcgggcctgc tggacgcgtt
1251 gcccggacacc catctgctgg gcggcggcgc gatcaaccgc aacagcggt
1301 cgctagacga ggccgttcaa gcactggcg tcaacctgaa gaagcggtt
1351 ccggcggaccc acctgacgac ggccgagcta cgctcggtt cgtgggtggag
1401 cggttttgcgt gtcgtgcctt tggcgtacga ttggcacatg atcgtgggt
1451 ccggcggggg gatgcgcgcg atggcaccgc tggcccccgtt attgcccgg
1501 gcccggacata tcgggttgc catcattgtc acctgtcaga tgagccaggc
1551 ttacaaggca accatggaca agttcgtcg cgccgcattc gggtcggccg
1601 ctccgacaat gttcctttcg ggcgagaagc aggaattccc atccagttag
1651 ttcaagggtca agcggcgccc ccctggccag gcatttctcg tctcgccaga
1701 cgccaaagag gtcatccagg cccctacat cgagcctcca gaagaagtgt
1751 tcgcagcacc cccaaagcgcc ggttaa

mtbn2

1 atggaaaaaaa tgtcacatga tccgatcgct gccgacatttgc acgcgcaagt
51 gagcgacaaac gctctgcacg gctgtacggc cggctcgacg ggcgtgacgt
101 cgggtacccgg gctggttccc gggggggccg atgaggtctc cgcccaagcg
151 ggcacggcgt tcacatcgga gggcatccaa ttgtggctt ccaatgcac
201 ggcaccaagac cagctccacc gtgcgggcga agcggtccag gacgtcgccc
251 gacccatttc gcaaatcgac gacggcgccg ccggcgtctt cgccfaatag

↑g

mtbn3

1 atgctgtggc acgcaatgcc accggagcta aataccgcac ggctgatggc
51 cggcgccgggt ccggctccaa tgcttgcggc ggccgcggga tggcagacgc
101 tttcggcgcc tctggacgtt caggccgtcg agttgaccgc ggcgcctgaac

FIG. 2 (continued)

151 tctctggag aaggcctggac tggaggtggc agcgacaagg cgcttgcggc
201 tgcaacgccc atgggtggct ggctacaaac cgctcaaca caggccaaga
251 cccgtgcgt gcaggcgacg ggcgaagccg cggcatacac ccaggccatg
301 gccacgacgc cgtcgctgcc ggagatcgcc gccaaccaca tcacccaggc
351 cgtccttacg gccaccaact tcttcggtat caacacgatc cgcgcgt
401 tgaccgagat ggattatttc atccgtatgt ggaaccaggc agccctggca
451 atggaggtct accaggccga gaccgcgggt aacacgctt tcgagaagct
501 cgagccgatg gcgtcgatcc ttgatcccgg cgcgagccag agcacgacga
551 acccgatctt cggaaatgccc tcccctggca gctcaacacc gggtggccag
601 ttgccgcccgg cggctaccca gaccctcgcc caactgggtg agatgagcgg
651 cccgatgcag cagctgaccc agccgctgca gcaggtgacg tcgttgttca
701 gccaggtggg cggcaccggc ggcggcaacc cagccgacga ggaagccgcg
751 cagatgggccc tgctcggtcac cagtccgctg tcgaaccatc cgctggctgg
801 tggatcaggc cccagcgcgg gcgcggggct gctgcgcgcg gagtcgtac
851 ctggcgcagg tgggtcggtt accccgcacgc cgctgtatgtc tcagctgatc
901 gaaaagccgg ttgccccctc ggtgatgccc gcggctgctg ccggatcgatc
951 ggccacgggt ggccgcgcctc cgggtgggtgc gggagcgatg ggccagggtg
1001 cgcaatccgg cggctccacc aggccgggtc tggtcgcgc ggcaccgc
1051 gcgcaggagc gtgaagaaga cgacgaggac gactgggacg aagaggacga
1101 ctgggtga

mtbn4

1 atggcagaga tgaagaccga tgccgctacc ctcgcgcagg aggcaggtaa
51 ttgcgagcgg atctccggcg acctgaaaac ccagatcgac caggtggagt
101 cgacggcagg ttgcgttgcag ggccagtggc gcggcgcggc ggggacggcc
151 gcccaggccg cgggtggtgcg cttccaagaa gcagccaata agcagaagca
201 ggaactcgac gagatctcga cgaatattcg tcaggccggc gtccaaatact
251 cgagggccga cgaggagcag cagcaggcgc tgtcctcgca aatgggcttc
301 tga

mtbn5

1 atggcggccg actacgacaa gctttccgg ccgcacgaag gtatggaaagc
51 tccggacgt atggcagcgc agccgttctt cgaccccaagt gcttcgtttc
101 cgccggcgcc cgcatcgga aacctaccga agcccaacgg ccagactccg
151 cccccgacgt cgcacgacct gtcggagcgg ttcgtgtcgg cccccccgccc
201 gccaccccca ccccccacctc cgcctccgccc aactccgatg ccgatcgccg
251 caggagagcc gccctcgccg gaaccggccg catctaaacc acccacacccc
301 cccatgccc tgcgggacc cgaaccggcc ccacccaaac caccacacacc
351 cccatgccc atgcgggac cgcacccggc cccacccaa ccacccacac
401 ctccgatgcc catcgccggc cctgcacccca ccccaaccga atcccagttg
451 gcgccccc gaccacccgac accacaaacg ccaaccggag cgccgcagca
501 accggaatca ccggcgcccc acgtaccctc gcacgggcca catcaacccc
551 ggccgaccgc accagcacccg ccctgggcaa agatgccaat cggcgaacccc
601 cccggccgtc cgtccagaccc gtcgtcgatcc cggccggaaac caccgaccccg
651 gcctgccccca caacactccc gacgtcgccg ccgggggtcac cgctatcgca
701 cagacacccga acgaaaacgatc gggaaaggtag caactggatcc atccatccag
751 ggcggcgtgc gggcagagga agcatccggc ggcgcagctcg ccccccggaaac
801 ggagccctcg ccagcgccgt tgggccaacc gagatcgat tgggtccgc
851 ccacccggccc cgccgcgaca gaacctcccc ccagccctc ggcgcagcgc
901 aactccggtc ggcgtgcccga ggcacgcgtc caccggatt tagccgcccc

FIG. 2 (continued)

951 acatgccgcg ggcgaacctg attcaattac ggccgcaacc actggcggtc
1001 gtcggcgcgg cgtgcagcg ccggatctcg acgcgacaca gaaatcctta
1051 aggccggcgg ccaaggggcc gaaggtaag aaggtaagc cccagaaacc
1101 gaaggccacg aagccgcca aagtgggtgc gcagcgccg tggcgacatt
1151 gggtgcacgc gttgacgcga atcaacctgg gcctgtcacc cgacgagaag
1201 tacgagctgg acctgcacgc tcgagtcggc cgcacatcccc gcgggtcgta
1251 tcagatcgcc gtcgtcggtc tcaaagggtgg ggctggcaaa accacgctga
1301 cagcagcggtt ggggtcgacg ttggctcagg tgccggccga cggatcctg
1351 gctctagacg cgatccagg cgccggaaac ctcgcgatc ggtagggcg
1401 acaatcgggc gcgaccatcg ctgatgtgct tgcagaaaaa gagctgtcg
1451 actacaacga catccgcgcg cacaactagcg tcaatcggt caatctggaa
1501 gtgctgcccgg caccggaaata cagctcgccg cagcgccgc tcagcgacgc
1551 cgactggcat ttcatcgccg atcctgcgtc gaggtttac aacctcgatc
1601 tggctgattg tggggccggc ttcttcgacc cgctgacccg cggcggtcg
1651 tccacgggtt ccgggtgtcg ggtcggtggca agtgcgtctaa tcgacggcg
1701 acaacaggcg tcgggtcggt tggactgggt ggcgaacaac gtttaccaag
1751 atttggcgag ccgcgcatgc gtggcatca atcacatcat gcccggagaa
1801 cccaatgtcg cagttaaaga cttgggtcggt catttcgaac agcaagttca
1851 acccgccgg gtcgtgggtca tgccgtggga caggcacatt gcggccggaa
1901 ccgagatttc actcgacttgc ctgcacccta tctacaagcg caaggtcctc
1951 gaattggccgg cagcgctatc cgacgatttc gagagggctg gacgtcggtt
2001 a

mtbn6

1 ttgagcgac ctgctgttgc tgctggtcct accgcccggg gggcaaccgc
51 tgcgcggcct gccaccaccc gggtgacgat cctgaccggc agacggatga
101 ccgatttggt actgccagcg cggtgcggc tggaaactta tattgacgac
151 accgtcgccg tgctttccga ggtgttggaa gacacgcccgg ctgatgtact
201 cggcggttc gactttaccc gcaaggcggt gtggcggttc gctcgcccc
251 gatcgccgccc gctgaagctc gaccagtac tcgatgacgc cgggggtggtc
301 gacgggtcac tgctgactt ggtgtcagtc agtcgcaccc agcgctaccc
351 accgttggtc gaggatgtca tcgacgcgat cgccgtgctt gacgagtac
401 ctgagttcga ccgcacggca ttgaatcgct ttgtggggc ggcgatcccc
451 ctttgaccg cgccgtcat cggtatggcg atgcgggcgt ggtggaaac
501 tggcgtagc ttgtgggtggc cggtggcgat tggcatcctg gggatcgctg
551 tgctggtagg cagttcgcc gcaacaggt tctaccagag cggccacctg
601 gccgagtgcc tactggtcac gacgtatctg ctgatcgcaa ccggccgcagc
651 gctggccgtg ccgttgcggc ggggggtcaa ctcgttgggg ggcgcacaag
701 ttggccggcgc cgctacggcc gtgtgttt tgaccttgat gacgccccgg
751 gcccctcgga agcgtcatga ttggcggtcg ttgcgttgc tcaccgctat
801 cgcgtcatc gggccggcg ctgccttcgg ctatggatac caggactggg
851 tccccgggg ggggatcgca ttgggtcgat tcattgtgac gaatcgccgc
901 aagctgaccg tcgcgggtcg gcggatcgcc ctggccggca ttccggtaacc
951 cggcgaaacc gtggacaacg aggagttgtc cgatcccgtc ggcacccgg
1001 aggctaccag cgaagaaaacc cgcacctggc aggccatcat cgctcggtg
1051 cccgcgtccg cggtccggct caccgagcg cgcacactgg ccaagcaact
1101 tctgatcgga tacgtcacgt cggtccggc gattctggct gccgggtgcca
1151 tcgcgggtcg gtggcgccgg cacttcttgc tacacagcct ggtggtcg
1201 gtttggatca cgaccgtctg cggttgc tcggtttt acgcccggcg
1251 ctgggtgtcg tggcggttgc tggcgccgac ggtcgccgatt ccgacgggtc
1301 tgacggccaa actcatcatc tggtacccgc actatgcctg gctgttgg



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FIG. 2 (continued)

1351 agcgtctacc tcacggtagc cctgggtgcg ctcgtggtgg tcgggtcgat
1401 ggctcacgtc cggcggttt caccggtcgt aaaacgaact ctggaattga
1451 tcgacggcgc catgatcgct gccatcattc ccatgctgct gtggatcacc
1501 ggggtgtacg acacggtccg caatatccgg ttctga

mtbn7

1 atggctgaac cggtggccgt cgatcccacc ggctttagcg cagcggccgc
51 gaaattggcc ggcctcgttt ttccgcagcc tccggcgccg atcgcggtca
101 gcgaaacgga ttcggtggta gcagcaatca acgagaccat gccaagcatc
151 gaatcgctgg tcagtgacgg gctgcccggc gtgaaagccg ccctgactcg
201 aacagcatcc aacatgaacg cggcggcgga cgtctatgct aagaccgatc
251 agtcactggg aaccagttt agccagttatg cattcggttc gtcgggcgaa
301 ggctggctg gcgtgcctc ggtcggtggt cagccaagtc aggctaccca
351 gctgctgagc acacccgtgt cacaggtcac gaccagctc ggcgagacgg
401 ccgctgagct ggcacccgtt gttgttgcga cggtgccgca actcgttcag
451 ctggctccgc acggcggtca gatgtcgcaa aacgcatccc ccatcgctca
501 gacgatcagt caaaccgccc aacaggccgc ccagagcg cagggcggca
551 gcgccccaaat gcccgcacag cttgcccagcg ctgaaaaacc ggccaccgag
601 caagcggagc cggtccacga agtgcacaaac gacgatcagg ggcgaccagg
651 cgacgtgcag ccggccgagg tcgttgccgc ggcacgtgac gaaggcggccg
701 ggcacatcacc gggccagcag cccggcgggg gcgttcccgc gcaagccatg
751 gataccggag ccggtgcccg cccagcggcg agtccgctgg cggcccccgt
801 cgatccgtcg actccggcac cctcaacaac cacaacgttg tag

mtbn8

1 atagtttata ccaggccgac gggcagctat gccagacaga tgctggatcc
51 gggcggtgg gtggaaagccg atgaagacac tttctatgac cggggccagg
101 aatatacgca ggttttgcac agggtcacccg atgtatttggc cacctgcccgc
151 cagcagaaag gccaacgtctt cgaaggccgc ctatggtccg gcggcgccgc
201 caatgctgcc aacggcgccc tgggtgcacaa catcaatcaa ttgtatgacgc
251 tgcaggatta tctcgccacg gtgattaccc ggcacaggca tattgcccgg
301 ttgatttgcac aagctaaatc cgatatccgc aataatgtgg atggcgctca
351 acgggagatc gatattctgg agaatgaccc tagcctggat gctgatgagc
401 gccataccgc catcaattca ttggtcacgg cgacgcatgg ggcacatgtc
451 agtctggtcg ccgagaccgc tgagcgggtg ctggaaatcca agaattggaa
501 acctccgaag aacgcactcg aggatttgc tcagcagaag tcggccgcac
551 ccccaacgt gcctaccctg gtctgtccat ccccccggc acccgggcaca
601 ccggaaaccc cgatcaccac gggaaaccccg atcaccggc gaaacccaaat
651 cacacccatc ccgggagcgc cggttaactcc gatcacacca acgcccggca
701 ctccccgtcac gcccgtgacc cccggcaagg cggtcacccccc ggtgaccccg
751 gtcaaaaccgg gcacaccagg cgagccaaacc cgcgtacacgc cggtcacccccc
801 cccggtcgccc ccggccacac cggcaacccc ggcacacgccc gttaccccg
851 ctccccgtcc acacccgcag ccggctccgg caccggcgcc atcgctggg
901 ccccaacccgg ttacaccggc cactcccggt ccgtctggtc cagcaacacc
951 gggcaccacca gggggcgagc cggcgccgc cgtcaaaaccc gcggcggtgg
1001 cggagcaacc tgggtgtccg ggcacaccccg cggggcgggg gacgcagtcg
1051 gggctggccc atgcggacga atccggccgcg tcggtgacgc cggctgcggc
1101 gtccgggtgtc ccgggacgc gggcggcggc cgcggccgc agcggtaccg
1151 ccgtgggagc gggcgccgcgt tcgagcgtgg gtacggccgc ggcctcgggc
1201 gcggggtcgc atgctgccac tggggcgccg ccggtggtca cctcgacaa



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FIG. 2 (continued)

1251 ggcggcggca ccgagcacgc gggcggcctc ggccggacg gcacctcctg
1301 cccgcccggcc gtcgaccgat cacatcgaca aaccggatcg cagcgagtct
1351 gcagatgacg gtacggcggt gtcgatgatc ccgggtgtcg gggctcgggc
1401 ggcacgcgac gccgcccactg cagctgccag cgcccggccag cgtggccgcg
1451 gtgatgcgtc gcggttggcg cgacgcacg cggcggcgct caacgcgtcc
1501 gacaacaacg cggcgacta cgggttcttc tggatcacccg cggtgaccac
1551 cgacgggttcc atcgtcgtgg ccaacagcta tggctggcc tacatacccg
1601 acgggatgga attgccgaat aaggtgtact tggccagcgc ggatcacgca
1651 atcccggttg acgaaattgc acgtgtgcc acctacccgg ttttggccgt
1701 gcaaggcttgg gcggtttcc acgacatgac gctgcggcg gtgatcggtt
1751 ccgcggagca gttggccagt tcggatcccgt gtgtggccaa gattgtctg
1801 gagccagatg acattccgga gagcggcaaa atgacgggcc ggtcggcgt
1851 ggagggtcgtc gaccctcgg cggcggtca gctggccgac actaccgatc
1901 agcgtttgcg cgaattgttg ccgcggcgcc cgggtggatgt caatccaccg
1951 ggcgatgagc ggcacatgct gtggttcgag ctgatgaagc ccatgaccag
2001 caccgctacc ggcgcgagg ccgctcatct gcggcggttc cgggcctacg
2051 ctgcccactc acaggagatt gccctgcacc aagcgcacac tgcgactgac
2101 gcggccgtcc agcgtgtggc cgtcgccgac tggctgtact ggcaatacgt
2151 caccgggttg ctcgaccggg ccctggccgc cgcatgctga

